

Status of the PJM Queue: Overview Comments of PJM Interconnection

Steve Herling
Vice President- Planning
FERC Technical Conference on Interconnection Queuing Practices
Docket No. AD08-2-000 et al.



UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Interconnection Queuing Practices	Docket No. AD08-2-00
Midwest Independent Transmission System Operator	ER07-1375-000
Midwest Independent Transmission System Operator	ER07-970-000
Southwest Power Pool	ER07-1311-000
PacifiCorp	OA07-54-000
United States Department of Energy Bonneville Power Administration	NJ08-2-000

PJM Interconnection L.L.C. (PJM) provides this overview of facts concerning its present interconnection queue in order to serve as a reference document for the Commission's consideration at its December 11 Technical Conference on Interconnection Queuing Practices. PJM also provides some initial thoughts on certain of the questions raised by the Commission in its November 30, 2007 Second Notice of Technical Conference. Steve Herling, PJM Vice President, Planning will be available, as a panel participant on the Commission's Fourth Panel to further elaborate on these matters.

Background

PJM administers the connection of new generating facilities to the grid as part of its role as a Regional Transmission Organization. PJM coordinates the planning process for connecting new generation, analyzes the reliability impact of proposed generating projects and monitors the construction of the facilities required to interconnect new generation to the grid. The RTO plans the expansion and enhancement of the grid on a regional basis through a 15-year planning horizon set forth by the Regional Transmission and Expansion Planning (RTEP) process.

Because the planned interconnection of new generating units and proposed increases in the output capability of existing generating units affect the overall operation of the grid and its reliability, they are reviewed as part of the RTEP process.

There are currently 584 generation projects active in the PJM interconnection queue, totaling 80,218 MW. These projects break down by fuel source as follows:

Wind	190 projects	35,811 MW
Gas	170 projects	36,659 MW
Coal	69 projects	15,413 MW
Nuclear	33 projects	8,288 MW
Hydro	17 projects	1,059 MW
Oil	16 projects	1,269 MW
Other	89 projects	1,363 MW

These projects include new generation, as well as upgrades to existing generating facilities. The following chart is intended to combine the geographic breakdown of these projects by state and by fuel type. Clearly, the volume of projects in the queue is significant, but what is notable for this Technical Conference is that the queue projects represent a range of fuel types and are geographically dispersed across the PJM system.

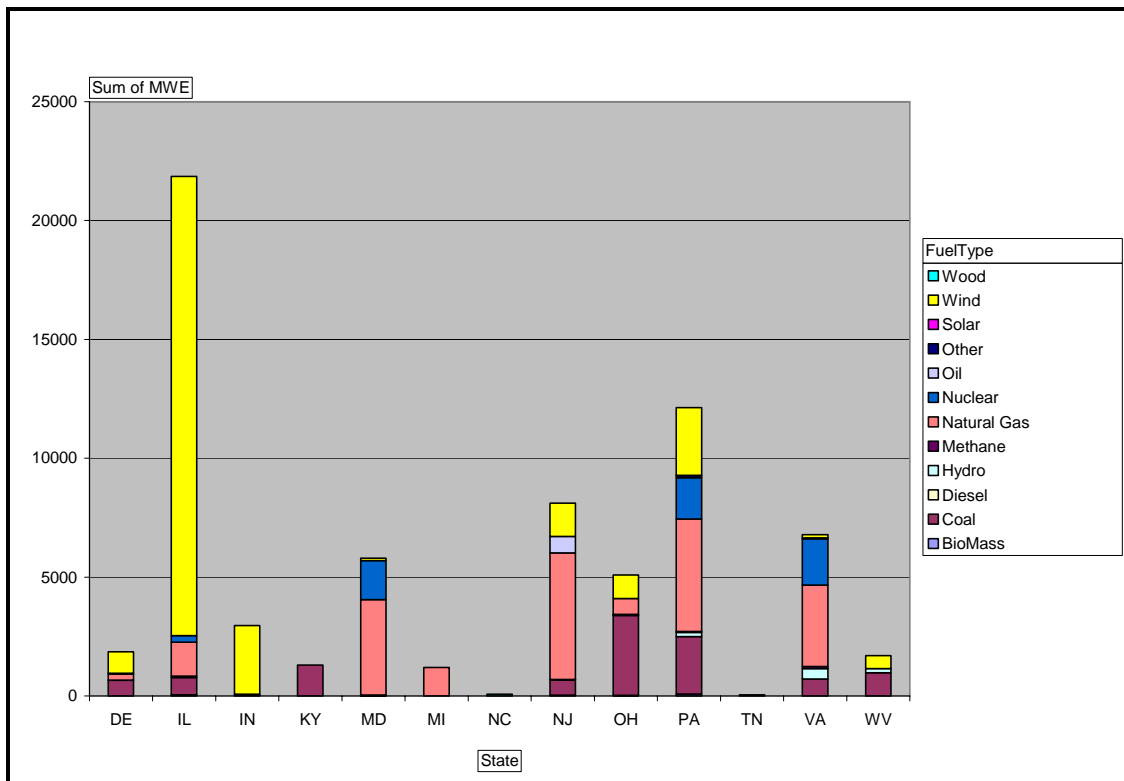


Figure 1

Challenges

Queue Volume and the Interrelated Nature of Studies.

The four interconnection queues during the two-year period ending January 2005 included 35, 28, 31, and 52 requests, respectively. The next four interconnection queues, comprising the two year period ending January 2007, included 76, 64, 92 and 88 requests, respectively. Average queue volume and therefore the number of interconnection studies required to be performed, increased by 120%. All services, including long-term firm point-to-point transmission and requests related to the provision of Upgrade Auction Revenue Rights (UARRs)¹ were consolidated in the queue that ended in July 2007 (Queue S). There were more than 130 requests in Queue S, including more than 100 generation projects. As seen in Figure 2, more than 100 requests have already been received in Queue T, which closes on January 31, 2008. Based on the typical timing of queue submissions, Queue T will likely include more than 200 requests before it closes.

The significant increase in the number of queue requests has made it increasingly difficult to process interconnection studies in a timely manner. Particularly troubling has been the standard practice within the generation community of submitting projects near the end of each queue. Approximately 40% of the requests in Queue R were submitted within the last month of a six-month queue. Almost 50% of the requests in Queue S were submitted within the last month, of which 51 requests were submitted on the last day. Under current tariff provisions, kick-off meetings must be scheduled and feasibility studies completed within two months of the close of the queue.

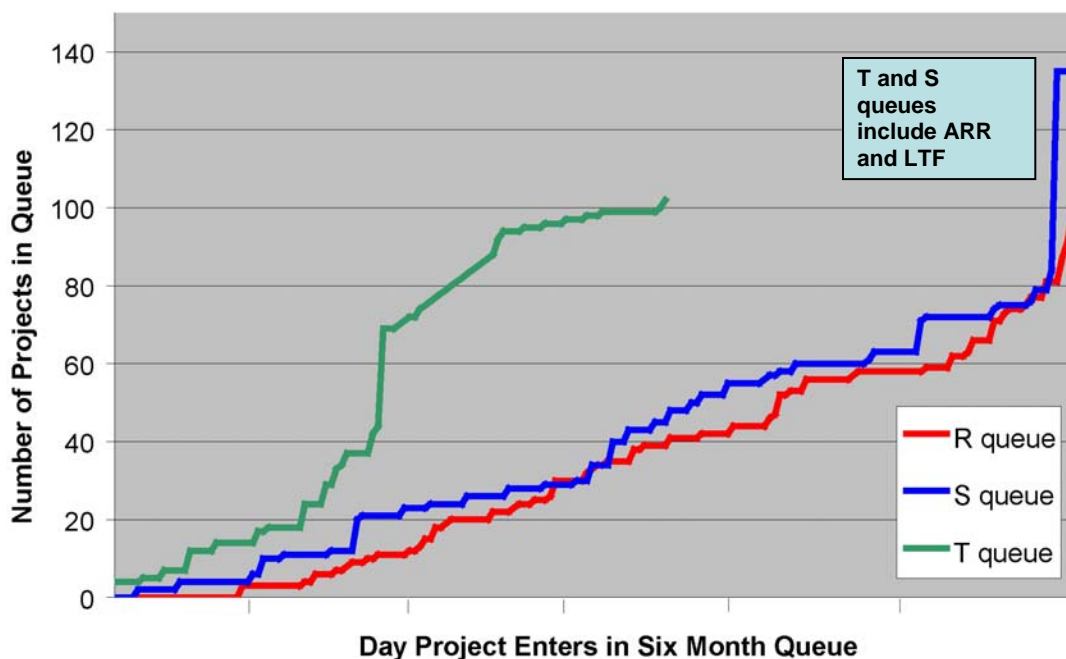


Figure 2

¹ Upgrade Auction Revenue Rights are the rights to auction proceeds resulting from the additional transmission capacity brought about through an upgrade approved through the RTEP. These are a form of Incremental Auction Revenue Rights.

Complications from Requests for Studies of Multiple Interconnection Points

One further complication, in addition to the volume of requests, is the impact of projects requesting analysis for multiple points of interconnection. While the analysis for one project with two points of interconnection is not overly burdensome, the downstream impact on subsequent projects and the associated workload becomes significant as the number of projects with multiple points of interconnection increases. Aside from the workload, the multiple sets of results can present significant uncertainty for subsequently queued projects as their results become dependent on more and more decisions to be made by earlier queued projects.

Challenges Raised by Large Projects Requiring Major Network Upgrades.

In addition to increasing queue volume and the timing of request submission, the most significant issue affecting the ability to perform studies in a timely manner is the impact of projects requiring large scale network upgrades. These projects have two basic impacts on the queue. First, projects requiring tens or hundreds of millions of dollars in network upgrades necessarily take a long time to evaluate. Second, the required network upgrades for such projects must be factored into the analysis for subsequent projects in the queue. Queue studies are cumulative and build upon prior identified upgrades. Without considering those upgrades, the results for subsequent projects would not represent a system that both reflects and respects the precedent rights of the earlier queued project.

The delay inherent in the substantial amount of analysis required to identify the large scale network upgrades essentially is carried through any queued projects affected by the precedent project. Complex projects come in many forms. The problems they create in queue processing are not dependent on the type of project or its fuel source. Two examples will help to illustrate the nature of the problem.

First, four major transmission projects have recently been under evaluation in the interconnection queue to deliver capacity and energy from the PJM system to New York City. A third of these projects is queue position O66, delivering from Bergen, in New Jersey, to 49th Street in Manhattan. The fourth is queue position Q75, also delivering from Bergen to 49th Street. The recently released System Impact Study for the O66 project identifies approximately \$450 million of network upgrades that will be required for system reliability to interconnect the project. The feasibility study for the Q75 project identified 78 new criteria violations and contributions to 57 previously identified violations.

Studies of this magnitude cannot be completed in the timeframes required by the tariff and, in fact, took considerably longer. More importantly, the upgrades required for these projects impact most of the subsequently queued projects in eastern PJM. Any generator contributing to flows on lines affected by the earlier queued transmission projects must wait for the required upgrades to be identified before analysis can be performed to determine whether the upgrade required for these projects transmission project will also provide for the generator interconnection or whether a more robust upgrade is needed. As progressively more significant upgrades become required, it becomes more difficult to identify viable solution options.

A second example relates to wind projects awaiting interconnection within the State of Illinois. Here too, the problem is the complexity of the project and its impact on queue processing, not the particular fuel source or type of project. Presently, there are approximately 20,000 MW of wind projects awaiting interconnection within the

state of Illinois. Four of these project combined represent 7,000 MW of wind generators in South Dakota waiting to be connected to the PJM system. The transmission upgrades that will be required to integrate projects of this size into the broader PJM system will be significant, likely involving multiple new backbone transmission lines. As with the discussion of the transmission projects in New Jersey outlined above, it will inevitably take much longer than allowed by the Tariff to complete the studies and the required upgrades will impact most of the subsequent projects in western PJM causing a domino effect of delays through the interconnection queue.

Solution Opportunities

Earlier in 2007, PJM initiated discussion through the Planning Committee related to a number of options for improving the queuing process. Two changes were approved by the PJM members and have been filed with the Commission. The first relates to changing from two six-month queues each year to four three-month queues to ease the workload over the year and, hopefully, reduce the sense of urgency that leads to large numbers of last minute submissions. The second adjusts the timing of studies related to requests for long-term, firm transmission service so that the determination of rights and obligations for all forms of service are fully synchronized.

A number of other changes are still under discussion and will continue to be pursued in 2008. These include additional milestone requirements in the queuing process, increasing the cost structure associated with interconnection studies, and rules that would allow projects in critical locations to either move earlier in the queue or be evaluated separately from the rest of the queue. These changes require further development, but generally focus on a few primary themes.

First, there is a desire to restructure the process to more quickly remove the projects that are “not real”, i.e. to separate the wheat from the chaff. While it, perhaps, goes without saying, the goal is to evaluate the “real” projects in a timelier manner. A number of process improvements have been implemented among PJM and the transmission owners to enhance the timeliness of studies, but removing less serious projects more quickly would greatly improve performance in this area.

Second, there is a clear need for generation capacity in certain areas of the PJM system. The planning process and the capacity market (Reliability Pricing Model)² send signals to this effect; however, the interconnection process makes no distinction with regard to queuing priority based on system benefit. Any process that digresses from the “first-come, first-served” approach to assigning rights and obligations will have to involve a conscious decision that “queue jumping” is appropriate in certain circumstances and very specific rules that define those circumstances.

There has been significant discussion of the elimination of direct assignment of network upgrade costs to generators as a means to resolve the problems being experienced with the interconnection queue. Without taking a position on this issue, it must be remembered that the assignment of these costs was intended to impose a

² RPM is the new model implemented this year establishing a capacity market that sends long term price signals to attract needed investments in reliability in the PJM region. RPM facilitates the addition of generation resources, as well as demand response.

level of discipline on the siting decisions made by generation developers. Presumably, faced with cost responsibility for required network upgrades, developers would site their projects where transmission capability could reasonably accommodate those projects. Whether or not this presumption has merit, the elimination, alone, of direct assignment for upgrade costs will not improve the current queuing situation.

Some set of milestone obligations must be put in place, in the absence of direct assignment of costs, to impose discipline on the process or Transmission Providers could be faced with an increased volume of generation projects wishing to hold queue positions for the longest possible time while developers evaluate other aspects of their business plans. In addition, if large numbers of projects propose interconnection in a given area, the Transmission provider will be required to plan significant transmission system enhancements that will take far longer than the tariff allows and face the likelihood that these plans will be repeatedly re-tooled as projects eventually withdraw. These problems exist today to a degree. However, without facing the prospect of having to pay for high cost upgrades developers may stay in the queue longer, increasing the uncertainty for "real" projects and delay the point in time when realistic network upgrades can be identified.

This paper was designed to provide a base level of information concerning the PJM queue and to provide our initial thoughts on certain of the Commission's inquiries. PJM looks forward to further dialogue with the Commission and with its stakeholders on these important issues.